

## CHAPTER XX.

## SANITARY MATTERS.

*"In the time of Asoka we are told that a devotee suffered dreadfully from a thorn in his foot, and that Asoka hearing of this reflected that a timely application of a palmful of butter might have saved a dangerous ulcer, and decreed that in future medicines should be dispensed at the four gates of Patna. Whether this was or was not the commencement of medical practice in Viharas need not be decided, but it is at any rate well ascertained that Buddhist devotees early studied the art of healing, and that the chief merit of the still existing Viharas or Lama Serais in Thibet is their knowledge of herbs, drugs, and surgery."*—Life in Ancient India.

A separate Vaccination Department had existed in this Presidency for many years, and a Sanitary Commission (consisting latterly of a single Commissioner) for a shorter period. The Vaccination Department was in 1875 put under the Sanitary Commissioner, and the duties of the officers of the department much increased. Part of the expenses of this department fall on Provincial Funds and part on Local and Municipal Funds. Vaccination is nowhere compulsory except by a recent law in the island of Bombay.

The establishment of dispensaries all over the country has progressed very rapidly of late years. These are sometimes built or partly endowed by charitable persons, but almost always maintained by Local or Municipal Funds with a grant-in-aid from Provincial Funds.

It has been thought better in this chapter to bring together all the matters relating to the public health with which Revenue officers have to do, besides those about Vaccination and Dispensaries. All matters connected with the public health now receive much more attention than formerly, and all of them are to a greater or less extent under the district Revenue officers.

**1. Duties of Sanitary Commissioner.**—(1) In matters relating to the public health, the Sanitary Commissioner is the adviser of Government, and, as such, will exercise a constant oversight upon the sanitary condition of the people, European and Native, and the districts generally.

(2) He is charged with the duty of recording the mortality from various causes, and as the details which make up the sanitary requirements of a district are important factors in connection with the death-rate of the area, he should receive early intimation from local authorities of everything which, for good or ill, can affect that death-rate.

(3) He will report and advise upon the prevention and mitigation of epidemics, and upon the causes, prevalence, and prevention of the more ordinary diseases.

(4) He will exercise a general supervision in sanitary matters and sanitary improvements generally, as well in cantonments as in towns and villages, and to enable him to do this, he should be informed upon such matters as are engaging the attention of local authorities, and of such schemes as are contemplated.

(5) He should be informed of all projects for water-supply of populous towns and camps from all sources, whether for irrigation or for general purposes, and whether undertaken by Government or by others acting independently of, or under Government.

(6) He should be informed of all drainage schemes, whether for extended areas or for municipalities, towns, and cantonments.

(7) All plans of military buildings for the accommodation of troops, hospitals, lunatic asylums, jails, churches, and other public buildings of importance, for which approved standard plans do not exist, should be referred for his opinion as regards site, aspect, water-supply, drainage, ventilation, and general design.

(8) He will advise on all sites for stations, permanent or temporary, for barracks, hospitals, and their out-buildings, for bazaars and their accessories, for offensive trades, places for the disposal of the dead in or near civil stations or cantonments, slaughter-yards, latrines, lay stalls, sewage farms, and such like, and pilgrim encampments.

(9) As regards conservancy he will advise upon the general arrangements for the collection and disposal of surface refuse and house sullage.

(10) He should receive copies of all committee proceedings and all reports on sanitary matters *before* action upon them be taken, and should see projects and plans relative to such matters *before* work is commenced.

(11) Government relies upon the different departments and officers, seeing that the instructions contained in these orders are

fully understood by all concerned, and trusts that henceforth they will be acted up to so as best to give effect to them.

(12) It is very desirable that Municipalities and Cantonment Committees should, in communication with the Sanitary Commissioner and under such engineering advice as is obtainable, draw up a comprehensive scheme of general sanitary improvements to be carried out as funds permit, and not to be departed from when once fixed upon, except for very valid reasons.

(13) Whenever the Sanitary Commissioner inspects a municipal town or a cantonment, he should draw up a brief report, pointing out in detail all sanitary defects in drainage, water-supply, conservancy, &c. He should indicate the danger peculiar to locality and position, and state what improvements are most urgently required, and how they may best be carried out.

(14) The Chairman or the President should submit this report to the Municipality or Cantonment Committee, and should indicate such works as are most urgently required, and for the execution of which funds are available or can be provided.

(15) The Municipal Commissioners or the Cantonment Committee might then after discussion adopt such resolutions on the proposals as to them seem best. Copies of these resolutions should be sent to the Sanitary Commissioner for submission to Government, together with a copy of his own report, and such remarks on the resolutions as may suggest themselves.

(16) At the end of each year all Medical Officers who are members of Municipalities or Cantonment Committees should include in their annual reports a detailed account showing the extent to which all proposals have been adopted, and abstracts of these reports should appear in the report of the Sanitary Commissioner. Whenever the Sanitary Commissioner is able he should report how far his suggestions have been adopted, and upon the character of the work done.—*G. R. No. 2617, Aug. 23, 1876.*

**2. Duties of Subordinate Sanitary Officers.—**(1) The Deputy Sanitary Commissioners are the Superintendents of Vaccination and the Health Officers of their respective districts.

(2) When on tour they will take every opportunity of inspecting Birth and Death registers, and of giving such advice as may be necessary with regard to them.

(3) They will advise generally on local sanitary matters, more especially with regard to surface conservancy, ordinary surface and

subsoil drainage, and the conservation of tanks, wells, and other sources of water supply.

(4) As regards epidemics they will advise general precautionary measures, and try to find out their distinguishing characteristics, their causes, and their course.

(5) In all that relates to their duty as Health-Officers they will communicate with local authorities as well as with the head of their department.

(6) The Inspectors and Vaccinators will also inspect the registers and report to their departmental superiors as to how they are kept, and will advise Patels and others as to ordinary village cleanliness, will look at wells, tanks, &c., and report generally what attention is paid to simple matters of conservancy.

(7) Neither the Deputy Commissioners nor their subordinates are to do more than advise, and they will confine their advice (the latter especially) to such simple matters as are within the reach of the people, or which involve no outlay beyond the means of those advised.

(8) The Birth and Death Registers will be kept by the present agency (Kulkarnis and others), but all entries are to be made in register books, which will be prepared under the orders of Government, and no change is to be made in them without the sanction of Government.

(9) The Sanitary Commissioner should draw up such general rules or directions relating to the matters above referred to, as will enable the Deputy Commissioners to familiarize themselves with the kind of work expected of them, and also afford them the means of instructing their subordinates, the more intelligent of whom may be expected to become useful assistants in sanitary work.

(10) The Sanitary Officers will have no power to issue any orders. When action has to be taken, that action will be the duty of the Collectors and their Assistants.

(11) Superintendents of Vaccination and Sanitary Officers also inspect all Mofussil Dispensaries, and report upon them to the Deputy Surgeon General of the Division.—*G. R. No. 664, March 4, and No. 3750, Dec. 16, 1875, and No. 3289, Oct. 23, 1876.\**

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\* It is now ruled that Dispensaries in the Mofussil should be visited at least twice a year by the Civil Surgeon when the visit involves an absence from the Head Quarters of not more than three days, and other Dispensaries should be visited by the Deputy Sanitary Commissioner.—*G. R. No. 214, Jan. 22, 1883.*

### 3. General Sanitation.

*Suggestions for general guidance in matters relating to  
Village conservancy and the Public Health.*

1.—When a site has been carefully selected, and a new village is about to be laid out, its main streets should all run with the prevailing wind, and both main and cross streets should be as wide as possible. No lane even should be less than 10 feet broad.

2.—Each street should have its road-way proper, and on either side a foot-path, 10 feet broad, with channels for rain-fall. The road-way should always be wide enough to let two carts pass each other without touching the foot-paths.

3.—The breadth from the house plinth on one side to that on the other will be the breadth of the public street, and on this space no encroachments should be permitted. It is the common property of the village, and from end to end one unbroken line should be maintained.

4.—Tree-planting at measured intervals should be encouraged along the outer line of the foot-paths and on public reserved sites, and here the advice of the Forest Department should be obtained. In planting along lines of road, or in very wide streets or squares, an excellent plan is that sometimes adopted. Instead of having a single row on either side, a double row is planted down the centre, and the meeting branches form a shaded avenue for pedestrians. Breaks at convenient lengths serve for crossing from one side to the other.

5.—In addition to the public streets public sites will be required for markets, for wells and tanks, for schools and places of worship, for recreation, for cattle to be picketted, for cart-stands, and for all such objects as are common to the community generally.

6. Should any householder wish to project a covering over the foot-path in front of his house it should be 7 feet clear above the foot-path.

7. It is very seldom that a new village is laid out, but when the occasion does happen, it will be as well to avoid that want of alignment, and those errors of construction, which, in the older villages, are such impediments to street and other improvements.

8. As regards houses, the simplest and commonest form is that which has but one room, but whatever the description (whether large or small) and whatever the materials there are certain general principles which hold good in all cases.

9. There should always be a plinth, and it should be at least 1 foot above the ground level. It may be of any breadth, and covered in or enclosed.

10. For a detached single-room house, standing in its own enclosure, there should be a front and a back door, and a window in each side-wall, as well, for convenience as to ensure the passage of air not only *into* the house but *through* it.

11. As houses and rooms will be much what the owners' means can make them, it would be useless to exact that they be gauged by a fixed standard. In a general way it can be said what ought not to be allowed, but in the matter of measurements it is perhaps better to give a minimum, and let it be exceeded according to individual means. For rooms of the better class the walls should be 9 feet high, never less than 7. In the former case the doors should be 7 feet by  $3\frac{1}{2}$ , and in the latter 6 feet by 3. The walls of common wattle and daub huts should be 6 feet high, and the doors 5 feet by 3. No door should be under 5 feet.

12. For every inhabited room there should be at least one window opening to the external air, and in size this window should never be less than one-sixteenth of the floorspace. A convenient size is 18 inches square, and there should be one or more of these according to the size of the room.

13. In some part of every wall there should be openings of

Permanent ventilation for rooms. some sort, either common earthen cylinders, or brick open work.

It matters little how these openings are made so long as they exist, and there is no wall so slight, or so rough, in which they may not be made. They should be independent of doors and windows and high up, more especially so in gable ends.

14. For the roof there must be special ventilation to provide

Ventilation of roofs, flat. for the escape of foul air and smoke. With a flat roof, as in

Sind, there may perhaps be a door to give access to it, but whether or not, there can easily be made a small ventilating shaft about 1 foot square, and barred at the top. If this be impracticable, some of the common earthen cylinders should be built into the wall as high up as possible.

15. Ridge-roofs should have in them, in proportion to their

Ridge. size, one or more overlapping flap openings at least 3 feet square,

with a rise of 6 inches. They can be made alike in tiled and thatched roofs, and where there is only one, it should be on the side from which the wind seldom blows.

16. In a square or pyramid roof, where the rafters meet at a

Square or pyramid. common centre, there may still be the flap-opening, or a square ven-

tilating shaft 1 foot square at the apex. The construction of this shaft is so simple as to be within the capacity of any ordinary village carpenter.

17. An enclosed verandah should have a door, or a window, or

Verandah. brick open work, and no verandah should be less than 5 feet high.

18. When houses are detached, the inter-spaces should be at

Inter-spaces. least 10 feet. It is assumed that in villages space is not the object as it is in towns.

Line of shop-fronts. 19. No shop-front should project beyond the line of houseplinth.

20. Bathing places should, if possible, be detached from ordi-

Bathing places, waste-water from. nary village houses. They should always be raised above the ground

level, and the waste-water should be led away from them by a *straight*

cut. If this cut be puddled with clay, or lined with tiles, and mud-plastered, it will form a fairly serviceable surface drain. In most cases the waste-water may be utilized in a small bit of garden or for a few plants, or for a single tree.

21. In the same way the waste-water from cooking places may also be utilized, and the people should remember that, for the greater part of the year, they may with their waste-water, and without much trouble or expense, grow a welcome addition to their ordinary food-supply. Whenever and wherever waste-water is poured out over ground the earth should always be turned up or raked over it, and if thus treated, there is neither risk nor nuisance. If the earth be turned up over it every time it is poured out the same piece of ground may be used over and over again for an indefinite period.

Cooking places, waste-water from.

What should be done with waste-water.

22. All refuse of every sort should be removed from the house and its premises at least once in every 24 hours. It may be taken to some place or receptacle near at hand where the collective refuse of many houses is deposited for subsequent removal to some other place duly assigned outside the village and to leeward, or failing this, it may at once be taken outside. The object is to remove it from the house and its premises at least once every day, and if this be done, the time and manner of removal may be left to suit the convenience of the house-holder.

House refuse.

What should be done with it.

23. For every village there must be certain assigned places at which all refuse shall be deposited. These places must be outside the village, and to leeward, as regards the prevailing wind, and on no account must they be near any source of water-supply. It might perhaps be arranged that here each house-owner may have his own small plot where his own refuse-heap might remain until it was wanted for his fields. Mixed with earth it would be a valuable manure, and the cultivator would very soon learn to appreciate its value. If the refuse increases in bulk too rapidly it may always be reduced by burning.

Village refuse.

What should be done with it.

24. Villagers should remember that the refuse and the filth, which now lie uncollected, would have a money value, if collected and if carried to the village lands, and there utilized, would restore to them that richness which they have lost by constant cropping. There is no description of ordinary refuse, or filth, which may not be turned to account on land, and the prudent ryots will be those who collect it from the village generally. This they can do by offering their fields as places of deposit, and by letting their carts stand at certain hours in certain places, so that all may bring to them such daily refuse as they cannot otherwise dispose of.

25. As regards house privies, there are two rules which should everywhere be rigidly enforced. None should be allowed unless there are those in or near the village to attend to them, and where they are allowed, there should always be some sort of receptacle under the seat.

26. An excellent form of privy was introduced by Mr. Arthur Crawford when Collector of Kolá-ba, and it is a very good one, provided there are sweepers in attendance, and provided, also, that the deposit be removed at least once in every 24 hours. There is neither brick nor mortar to become excrement sodden and offensive. Being constructed of wooden uprights, and bamboo or other battens, the wind blows freely through it, and there can be no fouling of the ground under the seat, for a metal shoot delivers the deposit and the ablution water into a metal bucket. If it be more convenient a sort of eaves gutter might run along the back of all the seats, and deliver into a receptacle at one end. This would do away with separate buckets, but then the one receptacle would be heavier. If it be urged that metal shoots and metal buckets are not within the reach of ordinary villagers, it may be said, in reply, that, unless a man can afford to build a properly constructed privy and to undertake that it shall be attended to, he should not be allowed to have one.

27. But with all its advantages this privy is complained of. The people say, and not unreasonably, that there is a want of privacy. A man arrives and has to pass three or four compartments

before he comes to a vacant one, and in those occupied the men are fully exposed. Although this is a minor matter, it is one that

Privacy secured.

demand attention, and fortunately the want can be supplied. A fixed screen would secure the desired privacy, and in addition there would be the general trellis work screen running along the entire front. The deposit in the buckets

Excreta should be covered at once.

should be covered with a light coating of earth just to kill the smell until such time as the buckets are themselves emptied.

28. Another simple and serviceable form of privy was constructed by Colonel Goodfellow, R.E., V.C., for the High School at Kárwár, and is highly spoken of. It can be made of rough wood, earth, stone foot rests, and iron pans—so it is within the reach of all—and in place of stone or brick screen walls, common trellis work will serve the purpose. The walls and partitions can also be made of bamboo battens, and screens can be placed in front of the several compartments. The iron pans may be half filled with earth. One advantage of this privy is that if it gets foul the whole of the earth in which the pans slide can be removed, and the ramp can then be re-formed with fresh earth.

29. Where there are privies, and sweepers to attend to them, the deposit should be removed at least

Should be removed at least once every day to a common manure-yard.

once a day to an assigned place, and there it may be treated in different ways. It may be buried

in a trench about 3 feet deep, and covered with earth, but if this be done the probability is that it will remain in the trench, and be lost to the land. A preferable plan is to make a bed of earth and ashes on to which the deposit may be emptied, and covered in its turn with more earth and ashes. The several layers could then be

Should there be mixed with earth or sifted ashes, or both.

thoroughly mixed together, as is done in some places, and the result would be an innocuous,

inoffensive mass of the richest manure. In Gujarát, where there are sweepers, this plan offers no difficulties beyond those of supervision. In the Deccan and the Konkan although the Mahárs object to touch ordure they will remove refuse of which ordure forms a larger or smaller portion, so here again the difficulties are not insuperable. In Sind such is the dryness of the atmosphere,

and so great is the desiccating power of the sun, that there ought to be no difficulty. The sites should always be enclosed so as to exclude animals.

30. When from any cause trenches cannot be provided, the villagers must then, having due regard to decency, resort to the most convenient place outside the village, to leeward, and away from any source of water-supply.

31. Plots of untrenched ground might be enclosed for general resort, and the village Mahárs, or sweepers, where there are sweepers,

might cover the excreta with earth, and sweep everything up into one common heap. Urine, too, might also be utilized. Instead of being wasted here, there, and everywhere, let it be passed into any

sort of earthen vessels half full of earth or ashes, and, after micturition, let a handful of earth or

ashes be thrown in. When the vessel is full let it be taken to the common manure-yard, and there emptied. In this way every household might make a valuable addition to its manure-heap, and those without fields could sell their compost to those who have them. In China and Japan no refuse is wasted. The sweepings and excreta are all collected and used on the village lands, and the cost of collection is more than repaid by richer and heavier crops.

32. Every possible means must be taken to prevent the fouling of any place within the village, and no places outside should be used other than those specially assigned.

33. For the sick and infirm, and for children too young to be trusted out of sight, there should be provided any sort of common earthen vessel, half full of earth or ashes, with which the deposit should at once be covered. At least once every day the vessel should be emptied at the common manure-yard, and refilled with earth or ashes.

34. When the water-supply of a village is obtained from running water it should be drawn at a point up stream and above the village. All fords and ferries, all bathing and clothes-washing, all

cattle watering and washing, and all trade and other operations for which water is wanted, should be at a point down stream and below that at which the supply is drawn for drinking and ordinary house use. The purity of running water must be strictly preserved, for it runs to other villages, and is their source of supply.

35. When a tank is about to be made, there should be made in  
Tanks. or alongside of it one filtering  
well for the higher castes, and  
one for the lower. As long as caste prejudices obtain, so long will  
it be necessary to have more than one of these wells. Their  
construction is very generally understood, and one of the best is  
that in the Gowala Tank at Bombay. There are few existing  
tanks in which during the dry season these wells might not be  
made, but where it is impracticable, or impossible, the supply for  
drinking and ordinary house use should be drawn at one particular  
spot, and every operation which tends to foul the water should be  
conducted as far from this spot as possible. No cattle should be  
watered or washed in a tank, if it can possibly be avoided.

36. For every tank there should be a boat, or raft of some sort, no matter how rude, as well to guard against accidents as to remove floating impurities and dead and decaying vegetation. There should also be 2 or 3 bamboo or other floats which could be thrown to persons falling in accidentally or otherwise.

37. As regards wells, neither trouble nor expense should be spared to preserve them from all possible sources of impurity, and to this end nothing should be permitted at or near them which might contaminate them. The parapet wall should be high enough to exclude surface impurities and to guard against accidents. The supply should be raised by iron-chains and buckets. No soakage of any sort for trade or other purposes should be allowed, and bathing and clothes-washing should be so conducted that the water used shall not re-enter the well. Floating impurities and dead and decaying vegetation should be taken out as soon as possible, and sedimentary deposits should be removed periodically.

38. When cattle are watered from wells they should not be watered *at* them. The trough should be at least 50 feet distant, and, if possible, at a lower level. The rudest aqueduct will suffice.

The object is to avoid that mixture of mud, urine, droppings, and dirty water which may be seen round most wells.

39. For *every* well there should be a pavement sloping to a catch-water channel. This channel should be straight where it leaves the well, and if extended some 40 or 50 feet there might soon be formed a grove of trees. The distance should always be such that falling leaves could not enter the well, and roots would not dislodge the masonry. Where space is no object, and with a view to preserve the purity of the water, no operation whatever should be permitted within 100 feet of the parapet wall, and, if possible, wells should be covered in.

40. To guard against accidents, there should be laid across every open well a piece of timber, a cocoanut tree or other trunk, and from this a knotted rope should drop into the water, and it should be so fastened round the trunk that it may traverse it freely from one side of the well to the other. For large wells there should be in addition one or two floats.

41. In making wells from public monies the wants of the lower castes should not be overlooked.

42. Trees in and near villages should have their lower branches cut to a height of from 6 to 12 feet, and hedges should be cut and trimmed annually, and so trimmed that the wind may blow through them at the ground level. They should never be made receptacles for refuse. No rank grass, weeds, or undergrowth, should be allowed to grow near houses.

43. No cattle or sheep should be slaughtered for food except at an assigned place outside the village and to leeward, and all refuse from the slaughtering should be carefully buried. Neither hides nor skins should be prepared except at a place similarly assigned.

44. No cattle should be kept under inhabited rooms, and the practice of keeping them in any part of the house should be discouraged. They can be kept on the ground attached to the

house, and in this case there should be some sort of open shed under which the animals should

Urine of the cattle should be mixed with earth, and used as manure.

be tied up. The floor of the shed should be above the ground level, and should have just sufficient

slope to carry off water. In rear of the animals there should be a channel to carry off the urine, and if this urine be mixed with earth it will form a valuable manure. The cow-dung will probably be used as fuel, but the dirty litter should be swept out daily, and the floor should be kept even and clean.

45. Neither brick-making nor burning should be allowed except

Brick-making.

at a place specially assigned, nor should clay for brick-making be

excavated within the village. Should there be any old excavations they should be filled in with clean earth.

46. Cremation should be conducted to leeward of the village,

Cremation.

and away from all sources of water-supply. It should be carried out very thoroughly.

47. Burial-grounds should also be to leeward, and away from

Burial.

any source of water-supply, and the graves should be at least 4 feet deep.

48. When in any village there is an unusual amount of sickness

Unusual amount of sickness should be reported.

a report of it should at once be sent to the Mámldár who should take such action as may be neces-

sary, and the Patel or headman of every village should be furnished with such simple medicines as are entrusted to the police and others to be administered. At such times extra care should be taken with regard to food and water, and personal and general cleanliness, and clothing.

49. Should cholera prevail, application for relief should be made

Cholera,

upon the first appearance of diarrhoea, no matter how slight.

It cannot be too often and too carefully impressed upon the people, that *during cholera the danger is not so much from direct contagion as in the emanations from decomposing cholera excreta*, so before

Special danger to be avoided.

decomposition can set in all discharges from persons attacked by

cholera should at once be covered with earth, carried to a specially assigned place, and there carefully buried. If each fresh discharge be not removed as soon as passed it should always be covered with earth, and at once too. Bedding and clothes soiled by cholera discharges should be burnt.

50. Huts in which cholera has appeared should at once be

Purification of places in which cholera has occurred.

emptied of their inmates and of everything removable. The roofs should be stripped off and the doors removed. The windows should be opened and kept open, and the floors should be dug up and plentifully sprinkled with lime. If the walls are simply mud-plastered the coating should be removed and renewed. Every part of the house and its furniture, such as it is, should be freely exposed to sunlight and air. In houses of the better class these measures would be inadmissible, except as regards the removal of everything that can be removed, and its free exposure. The doors and windows should be opened and kept open, and the particular room should be thoroughly cleaned, and its walls washed with hot lime and water.

51. It is the duty of parents to secure their children against

Small-pox.—Protection by vaccination.

small-pox by having them vaccinated, and on no account should this duty be neglected. Every year there are thousands of deaths from small-pox, and in almost every instance it carries off those who have not been vaccinated. When the Government Vaccinator comes to a village all children of 3 months old and upwards should be taken to him to be examined and vaccinated, and his instructions should be implicitly followed.

52. Bodies of persons dying of epidemics, as of cholera, small-

Bodies of persons dying from cholera, small-pox, &c.

pox, &c., should be disposed of as soon as the signs of death are unmistakable.

53. As the opportunity offers these rules, or suggestions, may

Application of rules.

be applied to existing conditions, for instance, when a house is to be rebuilt let it be rebuilt as here recommended. Never lose the opportunity of improving a street, or public reserved site, or building. Let the Mahár quarter of the village be as well cared for as any other, for disease originating there through neglect may bring death to doors where cleanliness is observed.

54. Overcrowding, bad ventilation, neglected drainage, impure air and water, unripe fruit and vegetables, unwholesome and badly cooked food, neglect in removing refuse, and cholera excreta, low-lying and badly built houses, these are some of the chief causes of disease, and with ordinary precaution they are one and all of them preventible.

55. As the occasion calls for it these rules will be supplemented, and all concerned should understand that at all times advice may be had from the officers of the Public Works, Medical and Sanitary Departments, as well as from Collectors and their Assistants.—*Sany. Commr. with G. R. No. 2522, Sept. 13, 1879.*

(NOTE.—*The above suggestions were illustrated by sketch plans, which it has been impossible to insert here.*)

1st.—The cardinal requirement everywhere is cleansing and safe removal and disposal of house sewage.

2nd.—In all the smaller towns it is probable that the most efficient arrangements regarding drainage, at least for the present, will be to level and improve the surfaces of public streets, lanes, and house compounds, to provide ready escape for rain and surface water by well-made impervious surface drains, properly graded to the out-fall, so that all water may flow rapidly away and nowhere form surface pools, and to combine with this an efficient conservancy system, to keep as much of the house sewage as possible out of the surface drains.

3rd.—Shutting up bad wells and improving and protecting existing wells from subsoil pollution in the manner advised in our suggestions for improving Indian towns and villages.

And lastly, for anything that appears to the contrary, a little more animation and activity might be beneficially exercised to forward sanitary work both in towns and villages.—*Army Sany. Commr. with G. of I., No. 7-277, Aug. 10, 1882.*

3. **Collectors.**—The Collectors are to give the department as now organized all the aid in their power through the agency of their district and village establishments.—*G. R. No. 3289, Oct. 23, 1876.*

4. **Registers of births and deaths.**—The Superintendent of Vaccination must examine the original register of births and deaths at the villages themselves. If he finds fault with the manner in which these returns are prepared, he should not address the Mámlatdár on the subject, but the Collector or Assistant Collector in charge of the taluka, who will issue such orders as he may think necessary.

A Vaccinator should, whenever a sufficiently intelligent one can be spared, attend the Mámlatdár's kutcherry every month to assist in the compilation of the village return for transmission to the Superintendent of Vaccination and Health Officer.

#### DISPENSARIES.

5. **Examination.**—Dispensaries in the districts are to be examined by the Collectors and Assistants as well as by the Sanitary and Medical authorities.—*G. R. No. 769, March 12, 1875.*

#### 6. Rules regarding Charitable Dispensaries.

• *Amount of Government grant, &c.*

(1) Government will aid in the establishment of Charitable Dispensaries only when the Municipality of a Town or Local Fund Committee, or any private individual agree to share the expenses.

(2) The Government grant-in-aid shall, as a rule, be regulated according to the population of the town in which the dispensary is to be established, and shall not exceed—

Rs. 2,000 a year in towns with a population of ten thousand and upwards ;

Rs. 1,200 a year in towns with a population of more than five, but less than ten thousand ;

Rs. 600 a year in smaller towns.

But in no case shall the Government contribution exceed one-half the total cost as estimated by the Surgeon General.

NOTE.—The annual grant may, with the permission of the Collector, be paid to the Dispensary Committee at the beginning of the year.—(*G. R. No. 2289, July 20, 1875.*)

(3) Where dispensaries situated in small towns are of benefit to the surrounding district, the population test will not be strictly applied. Cases of this kind will be treated specially on a representation of the facts.

**Rules for Dispensaries—(contd.)**

(4) The first supply of all needful surgical and other instruments will be issued gratuitously from the public stores,\* and upon all medicines provided, only 10, instead of 45 per cent. advance will be charged. With these exceptions the Government contribution on account of *every* kind of expenditure shall be limited to a fixed sum in accordance with Rule 2. The list of articles includes the fullest supply which can be permitted, but it is in all cases left to the discretion of the Deputy Surgeon-General of the Circle so to modify the list as to prevent needless expenditure.

(5) The Municipality, community, or individual (as the case may be) shall provide a suitable house, both as regards position in respect to the sanitary state of the place and neighbourhood, and its adaptation for a dispensary, which shall be subject to the approval of the Deputy Surgeon General or any officer appointed by him. The requirements for a dispensary building are, a receiving-room for patients, which may be part of the veranda protected from sun and rain, a surgery, a small room for the private examination of patients, a small room for males and one for females, each to contain four beds; quarters for the Medical Officer, the native pupils and servants, cook-room, latrines, and a dead-house.

2 Presses for medicines.

2 Tables for compounding, writing, &c.

1 Table for operations.

8 Cots, taped.

6 Benches.

6 Chairs.

Shelves, fittings, water and cooking vessels.

(6) They shall

also furnish furniture, &c., agreeably to the list marginally noted.

(7) Applications for the establishment of dispensaries shall be made to Government either through the Surgeon General, Indian Medical Department, or through the Civil authorities of the district, who shall report to the Surgeon General.

(8) In forwarding the application to Government, the Surgeon General shall report whether, in his opinion, the application may be sanctioned, and whether there is a Hospital Assistant or Assistant Surgeon (according as may be required) available for the duty.

(9) The sanction of Government is necessary to the establishment of all dispensaries which may indent on Government for the supply of medical stores or claim any of the benefits of these rules.

\* The list of instruments will be found with the rules, but is not given here.

*Dispensary Committees.*

(10) When Government have sanctioned the establishment of a dispensary, a Local Committee will be formed to manage the institution and keep and look after its funds.

(11) In towns or cities where there is a Municipality, the Municipal Commissioners shall be the Dispensary Committee.

(12) In other places the Taluka Local Fund Committee shall be the Dispensary Committee. In such cases the Collector of the district shall appoint a Chairman of the Dispensary Committee, and may appoint any one to be a member of it who takes an interest in the institution.

*Duties and powers of Dispensary Committees.*

(13) The Dispensary Committee shall see that the registers, &c. supplied to the Medical Officer by the Deputy Surgeon General are regularly and carefully written up, that the returns are regularly sent, the dispensary hours strictly observed, and that patients are not neglected or ill-treated so as to cause popular dissatisfaction. They shall keep a direct general supervision over the conduct of the dispensary, reporting any shortcomings to the Collector, who will submit the case for orders to higher authority, if necessary. They shall also keep an account of the Dispensary Fund, which will consist of the Government, Local Fund, Municipal and other subscriptions, moneys realised by the sale of medicines, &c. They must carefully watch over the finances of the institution, to see that it is managed with economy, and that the expenditure is kept within the funds at their disposal.

(14) The Dispensary Committee should endeavour to supplement Government, Local Fund, or Municipal contributions by raising endowments, donations, or subscriptions so as to form a Dispensary Endowment Fund.

(15) The object of the Fund is to accumulate a capital sum, the interest of which only shall be used for the expenditure of the dispensary, and which will, it is hoped, gradually render it wholly or partly independent.

(16) The following instructions are to be strictly attended to:—

(a) The accounts of all Dispensaries to which Government contribute are to be kept in a uniform form, both for receipts and disbursements, which the Surgeon General will lay down.

**Rules for Dispensaries—(contd.)**

(b) Annual accounts must be sent through the Deputy Surgeon General to Government as soon as possible after the 31st March, giving a complete abstract of receipts and disbursements during the year, the balance at the Committee's disposal, and other detailed particulars in a form to be laid down by the Surgeon General.

(c) All payments due to Government servants lent to dispensaries must be made at the same rates, and with the same regularity and punctuality, as if they were in ordinary Government employ.

(17) For the purposes mentioned in Section XIII., the Dispensary Committee shall depute two of their number to visit the dispensary at least once a month.

(18) The Committee shall render to the Collector quarterly reports of their visits in accordance with the preceding section. The Collector must see that the submission of these is not overlooked.

(19) The appointment, fining, and dismissal of all dispensary servants, except members of the Indian Medical Department, who are under control of their departmental superiors, shall rest with the Committee. All pay abstracts shall be forwarded to the Deputy Surgeon General for countersignature in the first instance; but the contingent bills should be paid by the Committee on the countersignature of the Chairman alone. In dispensaries other than Grant-in-aid Dispensaries, the countersignature of the Deputy Surgeon General is necessary on contingent bills.

*Correspondence how to be conducted.*

(20) All communications on medical matters between the Assistant Surgeon or Hospital Assistant and the Deputy Surgeon General should be sent direct to the latter. In matters affecting the expenditure and control of funds and administration of the dispensary, the Chairman of the Committee and the Collector or his Assistant or Deputy in charge of the talooka, shall be the medium of communication.

(21) In forwarding to the Surgeon General the annual report of the Officer in charge of a Dispensary, the Deputy Surgeon General shall report fully on his conduct and qualifications, and on the successful working or otherwise of the dispensary, adding such suggestions as he may think will tend to increase the efficiency of the institution. The report shall first be sent to the Collector for such information and extract as he may require for his Annual Administration Report.

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The office of Deputy Surgeon General has now been abolished, and the duty of inspection has been assigned to Deputy Sanitary Commissioner.

*Inspection of Dispensaries.*

(22) The Deputy Surgeons General shall visit each dispensary in their respective circles at least once in the year, and as much oftener as they may be able, especially those on or near the Railway. They will carefully look into the general as well as medical management of each. Civil Surgeons shall also be deputed by the Deputy Surgeons General to perform this duty when they can be spared from their own duties, and when no other expense will be incurred but that which Government may sanction hereafter. They will report the results of the inspection to the Deputy Surgeon General.

(23) [Embodied in Order 2, para. 11.]

*Internal management of Dispensaries, &c.*

(24) The dispensary shall, as a rule, be open from 7 to 10 A.M. and from 5 to 7 P.M., for the treatment of ordinary out-patients.

(25) The dispensary shall not be left at all, if possible, at night by the Officer in charge; and he shall not, at any time, be compelled to visit out-patients who do not pay him, except in urgent cases and where the patient cannot be moved, or when an epidemic is prevailing, or in the case of Government servants entitled to his attendance at home.

(26) Payment is only to be demanded on account of medicines or medical advice at the dispensary, under Rules to be laid down by the Dispensary Committee.

(27) The number of in-patients to be under treatment at one time will be limited by the means at the disposal of the Committee, and the room available in the dispensary. Where only a few can be admitted, the most interesting cases should be taken in, subjects of surgical operations or of severe injuries.

(28) The dissemination of vaccination shall be considered an essential part of the duties of officers in charge of dispensaries, for which purpose days and hours are to be fixed, and correct registers kept according to prescribed forms.

(29) It shall be the duty of an officer in charge of a dispensary when there is no other Medical Officer at the station, to examine all corpses sent by the judicial authorities for medico-legal examination, upon which he is to make the usual report.

*Registers and Returns.*

(30) Registers of sick, &c., are to be regularly kept, agreeably to the usual forms.

**Rules for Dispensaries—(contd.)**

(31) Every sick applicant, on his name being entered on the Register, shall be provided with a paper according to Form 92 of the Medical Regulations, on which the prescriptions and, in important cases, the symptoms shall be noted at each visit; on the medicine being dispensed, the Case Diaries shall be retained in the dispensary, arranged and re-issued to the applicant at the next visit.

(32) Separate monthly returns of in and out-patients shall be transmitted through the Deputy Surgeon General to the Surgeon General.

(33) The annual reports are to be carefully drawn up, and punctually submitted on 1st April; they should comprise:—

- I. The Medical topography of the locality; this is to form the introductory part of the early reports of the dispensary.
- II. Leading facts of the Meteorological observations made during the year, and general remarks on the weather of each month.
- III. An annual return according to Form No. 50, Medical Regulations.
- IV. A notice of the different forms of disease, arranged in the order of Form No. 50.
- V. The diaries of six of the most interesting and important Medical and Surgical cases which have occurred during the year, either among the in or out-patients.
- VI. The Department of Vaccination is to be noticed, numbers vaccinated, caste, sex, age, condition of lymph, &c., in accordance with forms and instructions issued.

*Medicines and Instruments.*

(34) The cost of the supplies of Europe and country medicines, and of contingencies, pay of Medical Officer and of servants, &c., shall be defrayed out of the general funds of the institution, comprising interest on endowments, Government, Municipal, Local Fund grants, local subscriptions, and receipts of all kinds. Government being only a subscriber, all excess beyond the Government contribution must be paid by the Committee from their funds.

(35) Dispensary Committees will have their own rules as to whether the dieting of in-patients should be at the Committees' charge or otherwise.

(36) Indents for medicines and instruments are to be countersigned by the President or the Vice-President of the Municipality, or by the Collector or his Assistant or Deputy, and submitted to the Medical Storekeeper through the Deputy Surgeon General. In all cases they must be prepaid.

(37) The instruments provided by Government on the first establishment of a dispensary are a free gift, and become absolutely the property of the dispensary, to be disposed of as the Committee may think best. But they cannot be returned into store in exchange for others, nor can any instruments be thereafter obtained from the Public Stores, except upon payment.

(38) Repairs to instruments may be made by the Cutler to the Medical Stores, Bombay, free of cost, for which purpose the instruments are to be sent to Bombay, the cost of any articles expended in such repair being met by the dispensaries concerned.

(39) As the expenditure of medicines is a costly item in the accounts of Charitable Dispensaries care is to be taken that an expensive medicine shall not be indented for when a less costly one will do. To guide Deputy Surgeons General in controlling such expenditure, the Examiner of Medical Accounts shall forward to them yearly a priced invoice of all drugs and medicines in store.

#### *Miscellaneous.*

(40) Assistant Surgeons placed in charge of dispensaries receive Rs. 100 in addition to the pay of their grade if belonging to the 3rd class, and of Rs. 150 if belonging to the 2nd or 1st class. In like manner, certain Hospital Assistants educated in the Vernacular class are allowed Rs. 30 in addition to the pay of their rank, so long as they remain in the 3rd class. In estimating the cost of a dispensary, however, for the purpose of calculating the amount of the grant-in-aid towards it, the pay and allowances of a 3rd Class Assistant Surgeon alone shall be taken into account, the cost of the increased emoluments of a 2nd or 1st Class Assistant Surgeon being met by Government whenever occasion arises.

(41) In cases where dispensaries have been founded by private benefactors, and Government have agreed to support the dispensary on certain terms, those terms will be adhered to.—*Notification, March 4, 1875.*

It is clear that where the President of a Committee takes no trouble to see whether the subordinate members thereof do or do

**Rules for Dispensaries—(contd.)**

not perform their duties, they are not likely to interest themselves in those duties, and there is practically no check on or supervision of the work done by the officer in charge of the dispensary.

All Collectors should be requested to take special care to render the supervision exercised by Dispensary Committees regular and effective.—*G. R. No. 3869, Oct. 8, 1878, and No. 2659, May 21, 1880.*

**7. Salaries.**—In order to prevent unauthorized payments, the Deputy Surgeon General is to send the Collector a list, showing the authorized salaries of the dispensary servants, and to communicate changes that may occur from time to time.—*G. R. No. 2308, July 27, 1874.*

Lunatic Asylums and Civil Hospitals must be visited by the Surgeon General himself, while the Deputy Sanitary Commissioners should when on tour visit and examine the dispensaries within their charges, applying to them the same strict and searching scrutiny as was exercised by the Deputy Surgeons General. The additional work thrown on the Deputy Sanitary Commissioners will be but light, and is obviously of a cognate character to their general duties: Government are clearly of opinion that it will not justify any claim to additional remuneration. The examination of dispensaries, to the full extent to which it can be done by officers not possessing special medical knowledge, should also form an important part of the duties of district officers, and Government particularly request all Collectors to impress this upon their Assistants and Deputies, and themselves to watch carefully that the orders of Government in this respect are carried out.—*G. R. No. 1201, Apr. 26, 1880.*

**8. Reports.**—The reports of the Medical Officers in charge of dispensaries are to be sent by the Collector to the Deputy Surgeon General, after extracting what is wanted for the Collector's Administration Report.—*G. R. No. 5019, Sept. 18, 1874.*

**9. Accounts.**—The annual summaries of dispensary accounts are submitted by the dispensary officers to the Collectors, who examine and countersign them before forwarding them to the Deputy Surgeon General for transmission to the Surgeon General, Indian Medical Department. Should the Collectors discover errors in the summaries, they will at once return them to the dispensary

officers for correction and re-submission.—*G. R. No. 3192, Nov. 8, 1877.*

10. **Government grants.**—The Government grants to dispensaries are to be revised and adjusted triennially.—*G. R. No. 3192, Nov. 8, 1877.*

11. If a Medical Officer of higher rank than is sanctioned is sent to any dispensary, Government pays the difference between his pay and allowances and those sanctioned for the dispensary in addition to the regular grant.—*G. R. No. 2571, Aug. 21, 1874.*

12. **Leave allowances.**—The leave and travelling allowances of Medical Officers in charge of dispensaries are paid out of provincial revenues.—*G. of I. No. 2223, July 17, 1873.*

13. **Extra allowances.**—A Local Government may sanction the grant from Local or Municipal Funds of an addition not exceeding Rs. 15 a month to the pay of an Hospital Assistant, provided that the Local Government is satisfied that the Hospital Assistant does work in excess of the duty for which he is paid by the Imperial Government, and which could not properly be required from him in return for his regular pay.

2.—Provincial Funds being derived from the same sources as the Imperial Revenues stand on a different footing from Local or Municipal Funds, and no addition should be made from Provincial Funds to the pay of an Hospital Assistant or any other officer paid from Imperial Funds, without the previous sanction of the Government of India.—*G. of I. No. 1076, June 22, 1876.*

14. **Medicines.**—With reference to No. 26 of the Dispensary Rules, the fact of any Municipality or Local Fund Committee undertaking to provide for the gratuitous distribution of medicines is to be reported to Government by the Collector through the Medical Department.—*G. R. No. 1557, May 3, 1873.*

15. Medicines, &c., for dispensaries in Native States are no longer supplied from Government Stores, but obtained privately.—*G. R. No. 6261, Oct. 19, 1877.*

16. **Savings.**—All savings of dispensaries are to be invested in Government paper when the sums are large enough in the name of the Collector, otherwise in the Government Savings Bank in the names of the Collector and Dispensary Committee.—*G. R. No. 1493, May 15, 1875.*

## VACCINATION.

17. **Co-operation.**—Collectors and Assistants are to co-operate with the officers of the Vaccination Department, and if necessary report the Vaccinators to the Superintendent.—*G. R. Aug. 31, 1871.*

18. **Talooka Vaccinators.**—Each talooka is under a recent arrangement to have a separate Vaccinator for the benefit of the rural population, paid out of the Local Funds.

Collectors and their Assistants will now have a more direct interest in seeing that the Local Funds contributions to the Vaccination Department are utilized to the utmost. Perhaps the most useful and direct form which their assistance can take is that of seeing that the village officers keep the list and vaccination registers correctly and punctually. They should also insist upon timely intimation being given of the outbreak of small-pox in any particular locality, in order that the attention of the Assistant Superintendent may be specially directed to its suppression.—*G. R. No. 2399, Aug. 30, 1871.*

All Inspectors of Vaccination are to report themselves to Collectors and their Assistants whenever the opportunity offers.—*G. R. No. 3078, Oct. 9, 1878.*

19. **Municipal Vaccinators.**—Towns are required to pay for the Vaccinators stationed in them, and many Municipalities support Vaccinators of their own. The Municipalities have control over these Vaccinators, and much good may be effected, especially in Mofussil towns, by the direct personal interest the members of the Municipality may take in the way in which the Vaccinator carries on his duties. It is not long ago that a Municipality withheld a Vaccinator's pay because they considered he had been idle.—*G. R. No. 1481, June 24, 1870, and No. 2399, Aug. 30, 1871.*

20. **Vaccination of Government Servants.**—Nobody is for the future to be admitted to Government service unless he has been vaccinated.—*G. R. No. 4935, Aug. 14, 1877.*

21. **Returns.**—Vaccination returns are forwarded by the Vaccinators to the Mamletdars weekly, and by the Mamletdar to the Assistant Collector of the Talooka.—*G. R. No. 75, Jan. 6, 1873.*

22. **Inoculation.**—The prohibition of inoculation is not justifiable unless really complete and thoroughly efficient arrangements have been made for the protection of the people by vaccination.—*G. of I. Notif.*, Aug. 12, 1872.

The practice of inoculation can only be punished by the dismissal from the service of any Government servants proved to have connived at it.—*G. R. No. 52*, Jan. 27, 1878.

23. **Inspectors.**—University graduates may, if pre-eminently qualified, be permitted to enter the first or second grade of Inspectors of Vaccination, without passing through the lowest grade.—*G. R. No. 2096*, June 7, 1882.

### CHOLERA.

24. **Medical assistance.**—On the outbreak of cholera in the districts the local authorities are to apply for assistance to the Deputy Sanitary Commissioner and the nearest Medical Officer, and every Medical Officer is to exert his best endeavours to supply such medicines and medical aid as are at his disposal without injury to his immediate charge.—*Gort. Notif.* May 20, 1846, and *G. R. No. 2337*, Aug. 4, 1875.

25. **Reports.**—Collectors are to report outbreaks of cholera, as soon as they occur, direct to Government.

If it should break out, at, or near, any line of railway, they are to give immediate intimation to the Municipal Commissioner, Bombay.—*G. R. No. 410*, Feb. 26, 1867, and *No. 1570*, Aug. 22, 1868.

26. The civil authorities are to arrange for immediate information of the outbreak of cholera or small-pox in any village within twenty miles of a military cantonment (whether legally established under Bombay Act III. of 1867, or any other place at which troops are stationed) being communicated to the Commanding Officer.—*G. R. No. 2222*, Sept. 21, 1869; *No. 2691*, Sept. 22, 1871; and *No. 357*, Feb. 6, 1877.

27. Collectors are to send reports weekly or oftener if necessary to Government through the Sanitary Commissioner, during visitations of cholera or other serious disease. The preventive measures adopted should be reported.—*G. R. No. 1746*, June 11, 1875.

The weekly reports to be submitted by the Collector should contain full accounts of the preventive measures adopted, and the Sanitary Commissioner should note, with such observations as he

may deem necessary, whether the measures adopted are such as he considers best under the circumstances, in accordance with the instructions conveyed in Government Resolution No. 1746, dated 11th June 1875.—*G. R. No. 1684, May 27, 1881.*

**28. Simple rules.**—When cholera breaks out and there is no Medical Officer present, the following rules are to be observed by the civil officer:—

(1) Record and report the actual number of daily sick, and the average number and percentage of deaths to attacks.

(2) If possible always give the dates of the first and last attack, and in stating particulars always support them by dates of occurrence.

(3) Early report of attack can be enforced under Section 73 of the Municipal Act.

(4) Supply medicines and disinfectants.

(5) Divide the town into wards for supervision and cleansing.

(6) Issue admonitory notices as to caste dinners, weddings, pilgrimages—as to immoderate use of unripe fruit, vegetables, &c., and as to purity of drinking water.

(7) If it can be done, light fires round infected spots.—*G. R. No. 1394, May 8, 1876.*

**29. Precautions on Railways.**—During outbreaks of cholera the Railway authorities are to take special measures against the overcrowding of trains and for the booking of passengers without undue pressure. In communication with the civil authorities they are to establish temporary hospitals at those stations where great crowds of people are expected, and the charge is to be met from such local funds as may be available.—*G. of I. with G. R. No. 3135, Oct. 6, 1876.*

**30. General precautions.**—As to the great importance of avoiding overcrowding in time of cholera, civil officers should direct their attention to prevent overcrowding in jails and by pilgrims in villages and towns. Barracks should never be allowed more than the regulated number. If accommodation is required for more, a temporary shed might be erected in which short-term men might be housed.

As regards pilgrims, all that is desired is to divert the stream from villages and towns and cantonments as far as possible, and to provide them proper camping grounds, good food and hospitals,

with hospital comforts for the sick. Anything approaching to a regular quarantine is undesirable.—*G. of I. No. 256-264, Oct. 22, 1874.*

### 31. Instruction for the administration of cholera mixtures.

NOTE—The tin measures now supplied hold in the larger end one ounce, and in the smaller half an ounce.

Village and Police Officers are strictly enjoined to use these measures alone in administering medicines and not to give the medicines haphazard. They should also be careful to distinguish the mixture *with* opium from that *without* the drug. The two kinds of medicines are issued in bottles of different shapes so as to ensure easy recognition, even in the dark. The mixture *with* opium is to be given when the patient is suffering from vomiting and purging, but is to be discontinued immediately should the patient be found to be undergoing a state of collapse. The mixture *without* opium is to be given after the vomiting and purging have ceased.

#### *Cholera mixture with opium.*

The doses are—

At adult age .....	1 ounce in water.
„ 16 years .....	$\frac{1}{2}$ „ „
„ 8 „ .....	180 drops „
„ 4 „ .....	80 „ „
„ 2 „ .....	40 „ „
„ 1 year .....	20 „ „

Cholera pills should not be given with the mixture.

To a person above 8 years of age the dose may be repeated once or twice at the end of an hour or two if the vomiting and purging do not cease.

To a child under 8 years half a dose may be repeated as above.

Should there be collapse this mixture should not be given.

#### *Cholera mixture without opium.*

The doses are—

At adult age .....	1 ounce in as much water.
„ 16 years .....	$\frac{1}{2}$ „ „
„ 8 „ .....	$\frac{1}{4}$ „ „
„ 4 „ .....	60 drops in a little water.
„ 2 „ .....	30 „ „
„ 1 year .....	15 „ „

These doses may be repeated every one or two hours after vomiting and purging have ceased, until the pulse improves and the skin becomes warm.—*Surg. Genl. with G. R. No. 3051, Aug. 9, 1882.*

The two kinds of mixture should be kept in different bottles. The medicine has been found to be very efficacious when judiciously administered, but uneducated policemen cannot be expected to know the proper dose, and there is reason to believe that they sometimes give overdoses. All dispensaries should be supplied with a sufficient number of tin measures (those for adults and for children being different), and the Hospital Assistants should give them out with the medicines, and give the police or other persons instructions as to their use.—*G. R. No. 3003, Sept. 13, 1881.*

When cholera breaks out at any place, native officers at other places are much inclined to exclude people belonging to the former. Though this sort of quarantine cannot be very effective, it must to some extent lessen the chances of infection spreading. But as it cannot be carried out without some hardship to individuals, and as the people themselves like to have as little intercourse as possible with those belonging to places where there is cholera, instructions should be issued to the district officers and police not to attempt to enforce segregation, though they may warn the people of the danger of frequent communication between places where cholera exists and where it does not.—*G. R. No. 3003, Sept. 13, 1881.*

32. **Expenditure.**—As to the joint and several responsibility of Medical and Administrative Officers in case of the outbreak of an epidemic, it is the duty of the Medical and Civil Officers to decide on the measures to be adopted in concert, and to do the best they can, *with reference to available funds*; there must be a limit to all expenditure, and it would be better to consult the Municipality with reference to the expenditure it can afford, and to adopt cheaper measures, even if the Medical Officer does not think them quite so likely to be effectual as more expensive ones.—*G. R. No. 2342, Aug. 5, 1875.*

33. In non-municipal towns the expenses of white-washing, &c. in time of cholera must be borne by the people themselves.—*G. R. No. 3389, Oct. 22, 1875.*

34. Expenses of Hospital Assistants sent by the Medical authorities to fairs are to be paid by the Local Funds when such fairs are not self-supporting.—*G. R. No. 3009, July 19, 1876.*

35. In the case of sudden outbreaks of cholera in the districts, Collectors have authority under the Medical Code to employ native doctors on salaries not exceeding Rs. 20 a month; this expenditure is Provincial, and requires the sanction of Government in the Financial Department.—*G. R. No. 4033, Sept. 20, 1877.*

36. **Drinking water.**—Samples of the water usually drunk in the villages or towns attacked by cholera are to be sent to the Chemical Analyser.—*G. R. No. 4106, Dec. 8, 1873.*

37. **Camping grounds.**—The selection of grounds outside military limits for the purpose of encamping troops in case of any epidemic disease breaking out should be made by the military authorities in consultation with the Collectors.

As a general rule the land so selected will be dry moorum soil unfit for cultivation. Where cultivable land is unavoidably chosen, the preferable course will be for the Collector to enter into an agreement with the proprietor by virtue of which the land can at once be taken temporary possession of on payment by the Collector of whatever sum he may consider just on account of damage to crops and rent of land.

Proprietors will, it is believed, gladly adopt this course rather than be permanently deprived of their land under the Act.—*G. R. No. 2749, June 28, 1865.*

38. **Cattle disease.**—Serious outbreaks of foot and mouth disease are to be reported by Collectors to the military department but not ordinary visitations.—*G. R. No. 1864, June 21, 1877.*

Reports of cattle disease breaking out need not be sent to Government unless it should appear in so unusually virulent and destructive a form as, in the opinion of the District Officers, to call for special measures on the part of Government for its suppression.—*G. R. No. 2947, Oct. 14, 1874.*

### 39. **Water for Analysis:—**

#### RULES.

1. The quantity of water sent for examination should not be less than half a gallon. (Three ordinary quart bottles or six soda water bottles.)

2. Glass-stoppered bottles are the best, and the most convenient kind for holding the half gallon of water is the glass-stoppered bottle known as the "Winchester quart." If these are not pro-

curable, ordinary bottles of light coloured glass may be used, as it is impossible to ascertain when an opaque bottle is clean; they should be tightly closed with new corks, and the cork should be soaked in some of the water from the source for two hours before being used.

3. The bottles must be absolutely clean. They should, after ordinary cleansing, be washed out with a little strong sulphuric acid, then well washed with water till the washings are no longer acid, and finally rinsed out with some of the water to be sent for analysis.

4. The bottle ought to be nearly, but not quite full. If a glass-stoppered bottle, the stopper should be securely tied over with a piece of clean calico.

5. The water of a tank or river should be collected from a place where it is not subject to artificial disturbance; in the case of a river the middle of the stream is the best place; and the entrance of floating impurities should be avoided by immersing the bottle in the water, taking care that the mouth shall open at a little distance below the surface.

6. Each bottle should be labelled with the name of the source and the date of collection.

7. The bottles containing water should be securely packed, and transmitted to the Laboratory with the least possible delay. During transit the cases should not be exposed to the direct rays of the sun.—*Chemical Analyser with G. R. No. 2288, July 30, 1875.*

The packages should be addressed thus:—

*Water for Analysis.*

To

The Travelling Water Analyst,

Sanitary Department,

Bombay.

“Due intimation should be given to the Sanitary Commissioner’s office when samples have been despatched, and application should be made to the same office when sources of supply are to be examined. As samples should be examined as soon as possible after they have been bottled, it is very necessary that they be sent by the quickest route—by rail when possible, and not through the Commissariat Department if it can be avoided.—*Sany. Commr. with G. R. No. 4148, Dec. 8, 1881.*